HISTORY

COLLEGE OF MEDICINE

1959-1968

CHAPTER 7

DEPARTMENT OF MEDICAL MICROBIOLOGY

(ESTABLISHED 1966)

HENRY G. CRAMBLETT, M. D.

TABLE OF CONTENTS

CHAPTER 7

DEPARTMENT OF MEDICAL MICROBIOLOGY

I. General Academic

In order to provide an appropriate course for Medicine II students in medical microbiology, a Division of Medical Microbiology was established within the Department of Pathology on July 1, 1964. Increasing recognition of the importance of this discipline in the curriculum of the College of Medicine led to the proposal that this Division be established as a department. This request was approved to be effective July 1, 1966. On April 1, 1966, Dr. Henry G. Cramblett was named chairman of the Department. Doctors Bernard U. Bowman, Jr. and Abramo C. Ottolenghi who were within the Division of Medical Microbiology of the Department of Pathology were transferred to the Department of Medical Microbiology effective July 1, 1966. Other faculty, who were given cross-appointments in this Department at that time, included Drs. Vincent V. Hamparian, Ralph E. Haynes, and Robert M. Conant who were within the Division of Infectious Diseases of the Department of Pediatrics. During the year, two new faculty members were recruited for the Department, Dr. Frank A. Kapral and Dr. Norman L. Somerson. Additional faculty who had primary appointments in other departments and who were given cross-appointments in this Department included Dr. John A. Schmitt, Jr., Dr. Colin R. Macpherson, Dr. C. Michael Thorne, and Miss Virginia Torbet.

The overall objective of the Department is to provide professional, graduate, and postdoctoral training in medical microbiology and infectious diseases. This objective will be accomplished by providing (1) a course in medical microbiology for Medicine II students, (2) appropriate elective courses for Medicine III and IV students, (3) a graduate program in medical microbiology leading to the degrees of Master of Science and Doctor of Philosophy, and (4) postdoctoral training.

The course in medical microbiology is a required one in the curriculum of Medicine II students. For them, it is a three-Quarter sequence. The first two Quarters of this course are required for all graduate students in the Department. In this course, basic microbiology, the nature of microorganisms, microbial-host interactions, and infectious diseases are all interrelated in as meaningful a manner as possible. Postdoctoral training is offered to candidates who hold the M.D., D.V.M., D.D.S., or Ph.D. degree. The purpose of this program is to permit the trainee to develop special research techniques and/or to have the opportunity to pursue graduate work in order to prepare for an academic or research career.

During the second year, the graduate program of the Department leading to the degrees, Master of Science and Doctor of Philosophy was approved and was initiated in the Autumn Quarter, 1967. During the first year, five students enrolled in this program - three for the degree of Doctor of Philosophy and two for the degree, Master of Science. A training grant application to support this program was submitted to the National Institutes of Health. After a favorable report of the site-visitors, the Study

Committee, and subsequently the Council of the National Institute of Allergy and Infectious Diseases, the training grant was approved and funded effective July 1, 1968.

Two new faculty members, Dr. Raymond W. Lang and Dr. Donald C. Thomas, were successfully recruited during the second academic year.

Faculty members have been active in attendance at and participation in meetings of the national scientific societies. During 1966-68, Dr. Cramblett was nationally recognized by the following appointments. He was elected to the Council of the Midwest Society for Pediatric Research and elected Fellow, American Association for the Advancement of Science. He was appointed consultant, Seminar Services Unit, National Communicable Disease Center and named to serve on the Scope Advisory Panel on Biologic Products for United States Pharmacopeia XIII. He was elected to Fellowship, American Academy of Microbiology and named to serve on the National Institutes of Health, Clinical Research Fellowships Review Committee. Dr. Conant and Dr. Hamparian are members of the Viral and Rickettsial Registry, American Type Culture Collection. Dr. Hamparian was appointed to serve on the Advisory Committee of the Research Reagents Board, National Institute of Allergy and Infectious Diseases. Dr. Bowman is the recipient of a 5-year, N.I.H. Research Career Development Award which was effective January 1, 1968.

The Department has had a visiting professor program since its establishment. The first visiting professor was Dr. Arthur L. Koch, Professor

of Biochemistry and Microbiology, University of Florida. Others have included Dr. Guy P. Youmans, Professor and Chairman of Microbiology, The Medical School, Northwestern University; Dr. Perry O. Teague, Research Fellow, Department of Pediatrics, University of Minnesota Medical School; Dr. Albert G. Moat, Professor of Microbiology, The Hahnemann Medical College; and Dr. Leon T. Rosenberg, Associate Professor of Medical Microbiology, Stanford University.

II. Research Program

The research program of the Department is health-related and is designed to give optimum motivation to students, to provide an adequate basis for graduate training and to advance scholarly achievement.

The faculty was active in research from the initiation of the Department. During the first academic year, a total of $261,657 was expended on 23 health-related research projects within the Department.

During the second year, the members of the faculty remained active in their research projects and $356,243 was expended on 20 separate health-related research projects during the 1967-68 academic year.

The current research activities of the Department encompass a wide variety of interests:

a. A study is being conducted on the reaction of streptomycin with bacteriophage nucleic acid and subsequent effects of such a reaction on replication of the DNA in host cells.

b. The role of certain mycobacteria, their phages, and host response to these agents in the etiology of sarcoidosis is being evaluated.

c. Bacterial phospholipases are being used to characterize the structure and function of phospholipids in host tissue. Improved techniques for the purification, characterization, and assay of these enzymes are being pursued.

d. Purine deficient mutants of Escherichia coli are being utilized to investigate the biosynthetic pathways of pteridines in this organism.

e. The pathogenesis of staphylococcal infections is being investigated by studying the in vivo production and action of staphylococcal products, the in vivo persistence of staphylococcal L-forms, and the role of phagocytes, hypersensitivity, and humoral factors in immunity.

f. The host-parasite relationships of dermatophytes and other human mycotic agents are being studied with such tools as gnotobiotic animals, light and electron microscopy, tissue cultures, and serodiagnostic procedures.

g. Optimal conditions for the production of potent Mycoplasma pneumoniae vaccines for use in humans are being established. Attempts are also being made to isolate and identify mycoplasmas from clinical specimens and to ascertain their etiologic role in human disease.

h. The relationship of L-forms and mycoplasmas to known human bacterial pathogens is being investigated by nucleic acid homology studies.

i. Studies on the incorporation and biosynthesis of fatty acids, membrane synthesis, and location of enzymes in mycoplasmas are in progress.

j. Immunologic studies dealing with the antigenic analysis of viruses, the role of antibodies in myasthenia gravis, and the effect of cold stress on antibody synthesis are underway.

k. Research programs in virology are concerned with the etiology of respiratory disease, neurologic disease, and the pathogenesis of vaccinia virus infections in humans. A rubella diagnostic service and a rhinovirus reference center are being maintained and provide many research opportunities in these areas.

Research Grants and Contracts

1966-1967

	Amount Expended
Bernard U. Bowman, Jr.	
Infectious Nucleic Acids: Mechanism of Inhibition by Streptomycin (N.I.H. General Research Support - Ohio State University)	$ 3,000
Studies on the Roles of Acid-Fast Bacteria, Mycobacteriophages, and Bacteriophage Antibodies in the Etiology of Sarcoidosis (American Thoracic Society, National Tuberculosis Association Grant)	12,000
Inhibition of Bacteriophage ϕX174 Replication by Streptomycin (N.I.H. General Research Support - Ohio State University)	500
Robert M. Conant	
Development of Rubella Virus Antigens for Gel Double Diffusion Studies (N.I.H. General Research Support - Children's Hospital Research Foundation)	1,910
Preparation and Studies of Viral Antigens by the Gel Double Diffusion Method (N.I.H. General Research Support - Ohio State University)	3,759
Henry G. Cramblett	
Longitudinal Study of Infections in a Children's Home (With Ralph E. Haynes) (National Institutes of Health Grant)	12,603
Studies of Juvenile Rheumatoid Disease (With Ralph E. Haynes) (National Institutes of Health Grant)	15,803
Central Nervous System Viral Infections and Sequelae (With Ralph E. Haynes) (National Institutes of Health Grant)	23,255
Establishment of Rubella Research and Diagnostic Laboratory (With Vincent V. Hamparian and Ralph E. Haynes) (Ohio Department of Health Grant)	20,761

Vincent V. Hamparian

Rhinovirus Reference Center (With Robert M. Conant and Henry G. Cramblett) (National Institutes of Health Contract)..... 75,600

Studies on Antiviral Chemotherapy (Smith, Kline and French Laboratories Grant)..... 2,000

Ralph E. Haynes

Development of Rubella Skin Test to Indicate Immunity (N.I.H. General Research Support - Children's Hospital Research Foundation)..... 2,800

Frank A. Kapral

Studies on *in vivo* Grown Staphylococci (National Institutes of Health Grant)..... 25,000

Studies on the *in vivo* Growth of Staphylococci (N.I.H. General Research Support - Ohio State University)..... 7,500

Studies on the Mechanism of Lysis of Staphylococcal Hemolysins (N.I.H. General Research Support - Ohio State University)..... 5,885

Abramo C. Ottolenghi

Determination of What Relationship Exists Between the Structure of the Phospholipid and Its Biological Function (N.I.H. General Research Support - Ohio State University)... 3,186

The Production of Folic Acids in *E. coli* (N.I.H. General Research Support - Ohio State University)..... 795

The Generalized Shwartzman Reaction (N.I.H. General Research Support - Ohio State University)..... 1,300

Norman L. Somerson

Influence of Cultural Conditions and Concentration Procedures on the Antigenicity of Mycoplasma pneumonia Vaccines (National Institutes of Health Contract).....	$35,000
Factors Affecting Adhesion of Mycoplasma pneumoniae to a Glass Surface (N.I.H. General Research Support - Ohio State University).....	6,000
Population and Genetic Studies on Human Mycoplasmas (N.I.H. General Research Support - Ohio State University)...	500
Mycoplasma (N.I.H. General Research Support - Children's Hospital Research Foundation).....	2,000
Nutritional Requirements of Mycoplasma (N.I.H. General Research Support - Children's Hospital Research Foundation).....	500
1966-1967 TOTAL.....	$261,657

1967-1968

Bernard U. Bowman, Jr.

Studies on the Roles of Acid-Fast Bacteria, Mycobacteriophages, and Bacteriophage Antibodies in the Etiology of Sarcoidosis (American Thoracic Society, National Tuberculosis Association Grant).....	13,944
Inhibition of Bacteriophage ϕX174 Replication by Streptomycin (N.I.H. General Research Support - Ohio State University).....	4,000
Lysogeny in Mycobacterium Ulcerans (Bremer Foundation - Ohio State University).....	4,000

Henry G. Cramblett

Central Nervous System Viral Infections and Sequelae (With Ralph E. Haynes) (National Institutes of Health Grant).....	51,688
Longitudinal Study of Infections in a Children's Home (With Ralph E. Haynes) (National Institutes of Health Grant).....	14,850

Henry G. Cramblett (Cont'd)

Studies of Juvenile Rheumatoid Disease
(With Ralph E. Haynes)
(National Institutes of Health Grant)..... $13,760

Establishment of Rubella Research and Diagnostic Laboratory
(With Vincent V. Hamparian, Robert M. Conant, and Ralph E. Haynes)
(Ohio Department of Health Grant)..... 15,831

Vincent V. Hamparian

Rhinovirus Reference Center
(With Robert M. Conant and Henry G. Cramblett)
(National Institutes of Health Contract)..... 92,580

Studies on Antiviral Chemotherapy (Smith, Kline and French Laboratories Grant)..... 494

Frank A. Kapral

Studies on *in vivo* Grown Staphylococci (National Institutes of Health Grant)..... 24,677

Studies on the Mechanism of Lysis of Staphylococcal Hemolysin
(N.I.H. General Research Support - Ohio State University)... 10,685

Raymond W. Lang

Brain Antibodies in Sera of Schizophrenic Patients
(N.I.H. General Research Support - Ohio State University)... 11,218

Abramo C. Ottolenghi

The Generalized Shwartzman Reaction (N.I.H. General Research Support - Ohio State University)..... 5,000

Research in Medical Education
(With Henry G. Cramblett and C. Michael Thorne)
(Assigned Research Fund - Ohio State University)..... 500

J. Dennis Pollack

Synthesis of Human Mycoplasma Membranes (N.I.H. General Research Support - Ohio State University).....	7,460
Biosynthesis of Fatty Acids and Their Incorporation into Membranes by Mycoplasma pneumoniae and Related Organisms (N.I.H. General Research Support - Children's Hospital Research Foundation).....	2,329

Norman L. Somerson

Influence of Cultural Conditions and Concentration Procedures on the Antigenicity of Mycoplasma pneumoniae Vaccines (National Institutes of Health Contract).....	73,732
Population and Genetic Studies on Human Mycoplasma (N.I.H. General Research Support - Ohio State University).....	5,000
Nutritional Requirements of Mycoplasma (N.I.H. General Research Support - Children's Hospital Research Foundation).....	3,385

Donald C. Thomas

Research Equipment Fund (The Children's Hospital).....	1,110
1967-1968 TOTAL.....	$356,243

Since the Department was established (July 1, 1966), there have been 43 research papers and 12 sections in chapters in books published by faculty members. Several of the more significant publications are listed:

Bowman, B.U.: Biological Activity of ØX DNA, I. Inhibition of Infectivity by Streptomycin. J. Mol. Biol. 25:559-561, 1967.

Bowman, B.U.: Antigenicity of Mycobacteriophages R1, D29, and Leo in Rabbits. Proc. Soc. Exp. Biol. Med. 128:441-445, June, 1968.

Cramblett, H.G., Stegmiller, H., and Spencer, C.: California Encephalitis Virus Infections in Children. J.A.M.A. 198:108-112, October 10, 1966.

Cramblett, H.G.: Acute Laryngitis in Current Pediatric Therapy, Ed. 3, S.S. Gellis and B.M. Kagan, Editors, Philadelphia, W.B. Saunders Co., 1968, pp. 151-152.

Stroebel, F.W., and Cramblett, H.G.: Escherichia coli Infections in Current Pediatric Therapy, Ed. 3, S.S. Gellis and B.M. Kagan, Editors, Philadelphia, W.B. Saunders Co., 1968, pp. 719-723.

Cramblett, H.G.: Mumps in Current Therapy--1968, H.F. Conn, Editor, W. B. Saunders Co., Philadelphia, 1968, pp. 29-30.

Sabatino, D.A., and Cramblett, H.G.: Behavioral Sequelae of California Encephalitis Virus Infection in Children, Develop. Med. & Child. Neurol. 10:331-337, June, 1968.

Cramblett, H.G., Colonna, C.T., Shulenberger, H., and Ellis, B.: Effects of Temperature and Time Exposure Upon Viability of ECHO Viruses Types 1, 2, 3, 5, and 20. Amer. J. Clin. Path. 49:857-862, June, 1968.

Kapral, F.A.: Clumping of Staphylococcus aureus in the Peritoneal Cavity of Mice. J. Bacteriol. 92:1188, 1966.

Taubler, J.H., and Kapral, F.A.: Staphylococcal Population Changes in Experimentally Infected Mice: Infection with Suture Adsorbed and Unadsorbed Organisms Grown in vitro and in vivo. J. Inf. Dis. 116:257, 1966.

Ottolenghi, A.C.: Cationic Antibiotics and Phospholipase C as Tools in the Study of Phospholipid Structure and Function. I. Inhibition of the in vitro Clotting System by Cationic Antibiotics. Can. J. Biochem. 45:239-244, 1967.

Ottolenghi, A.C.: Cationic Antibiotics and Phospholipase C as Tools in the Study of Phospholipid Structure and Function. II. Combined Effects of Colistin Sulfate and Phospholipase C on the in vitro Clotting System. Can. J. Biochem. 45:245-249, 1967.

Somerson, N.L., Reich, P.R., Walls, B.E., Chanock, R.M., and Weissman, S.M.: Genetic Differentiation by Nucleic Acid Homology, II. Genotypic Variations within Two Mycoplasma Species. J. Bacteriol. 92:311-317, August, 1966.

Somerson, N.L., Reich, P.R., Chanock, R.M., and Weissman, S.M.: Genetic Differentiation by Nucleic Acid Homology, III. Relationships Among Mycoplasma, L-forms, and Bacteria. N.Y. Acad. Sc. 143:9-20, July, 1967.

Cohen, G., and Somerson, N.L.: Mycoplasma pneumoniae: Hydrogen Peroxide Secretion and Its Possible Role in Virulence. N.Y. Acad. Sc. 143: 85-87, July, 1967.

Somerson, N.L., James, W.D., Walls, B.E., and Chanock, R.M.: Growth of Mycoplasma pneumoniae on a Glass Surface. N.Y. Acad. Sc. 143:384-389, July, 1967.

Conant, R.M., Somerson, N.L., and Hamparian, V.V.: Plaque Formation by Rhinoviruses. Proc. Soc. Exp. Biol. Med. 128:51, 1968.

III. Faculty Biographies

BOWMAN, JR., BERNARD U.

B.S., Piedmont Coll. 1950; M.S., Emory U. 1957; Ph.D., U. of Oklahoma 1963; Asst. Prof., Dept. of Pathology 1964-66; Asst. Prof. 1966; Assoc. Prof. 1968--

CONANT, ROBERT M. see Department of Pediatrics

CRAMBLETT, HENRY G.

B.S., Mount Union Coll. 1950; M.D.,U. of Cincinnati 1953; Prof., Dept. of Pediatrics 1964--; Prof. and Chr. 1966--

HAMPARIAN, VINCENT V. see Department of Pediatrics

HAYNES, RALPH E. see Department of Pediatrics

KAPRAL, Frank A.

B.S., Philadelphia Coll. of Pharmacy and Science 1952; Ph.D., U. of Pennsylvania 1956; Assoc. Prof. 1966--

LANG, RAYMOND W.

B.S., LeMoyne Coll. 1952; M.S., Michigan State U. 1957; Ph.D., Michigan State U. 1959; Assoc. Prof. 1968--

MACPHERSON, COLIN R. see Department of Pathology

OTTOLENGHI, ABRAMO C.

B.S., Wilmington Coll. 1950; M.S., Rutgers U. 1952; Ph.D., U. of Pennsylvania 1960; Asst. Prof., Dept. of Pathology 1964-66; Asst. Prof. 1966; Assoc. Prof. 1968--

POLLACK, J. DENNIS

B.A., U. of Connecticut 1958; M.S., U. of Connecticut 1964; Ph.D., U. of Connecticut 1966; Instr. 1967; Asst. Prof. 1968--; Asst. Prof., Dept. of Pediatrics 1968--

SASLAW, SAMUEL see Department of Medicine

SCHMITT, JR., JOHN A.

B.S., U. of Michigan 1949; M.S., U. of Michigan 1950; Ph.D., U. of Michigan 1954; Instr. 1955; Asst. Prof. 1957; Assoc. Prof., Dept. of Botany and Plant Pathology 1962--; Assoc. Prof. 1966--

SOMERSON, NORMAN L.

B.S., Marietta Coll. 1950; M.S., U. of Pennsylvania 1952; Ph.D., U. of Pennsylvania 1954; Assoc. Prof. 1966--; Assoc. Prof., Dept. of Pediatrics 1967--

THORNE, C. MICHAEL see Department of Pathology

INSTRUCTORS

THOMAS, DONALD C., B.S., M.S., Ph.D.; 1968--

TORBET, VIRGINIA, B.S., M.S.; 1966--